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ARS Science Hall of Fame



September 10, 2008



Agricultural Research Service
U.S. Department of Agriculture

A special website is available that features photographs and biographies of all ARS Science Hall of Fame inductees since the inaugural year of 1986. Special features include browse and search functions and video clips from interviews with some members of the Hall of Fame.

Please visit www.ars.usda.gov/careers/hof/

Agricultural Research Service SCIENCE HALL OF FAME

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The ARS Science Hall of Fame was inaugurated in 1986. We determined that each succeeding year, one or more present or former scientists with the Agricultural Research Service could be selected, subject to the following criteria:

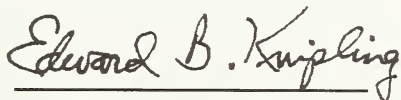
The selectee made widely recognized impact on agricultural research by the solution of a significant agricultural problem through research.

The selectee is a person whose scientific accomplishments and stature continue to affect the agricultural research community and/or influence the development of science-based agricultural policy.

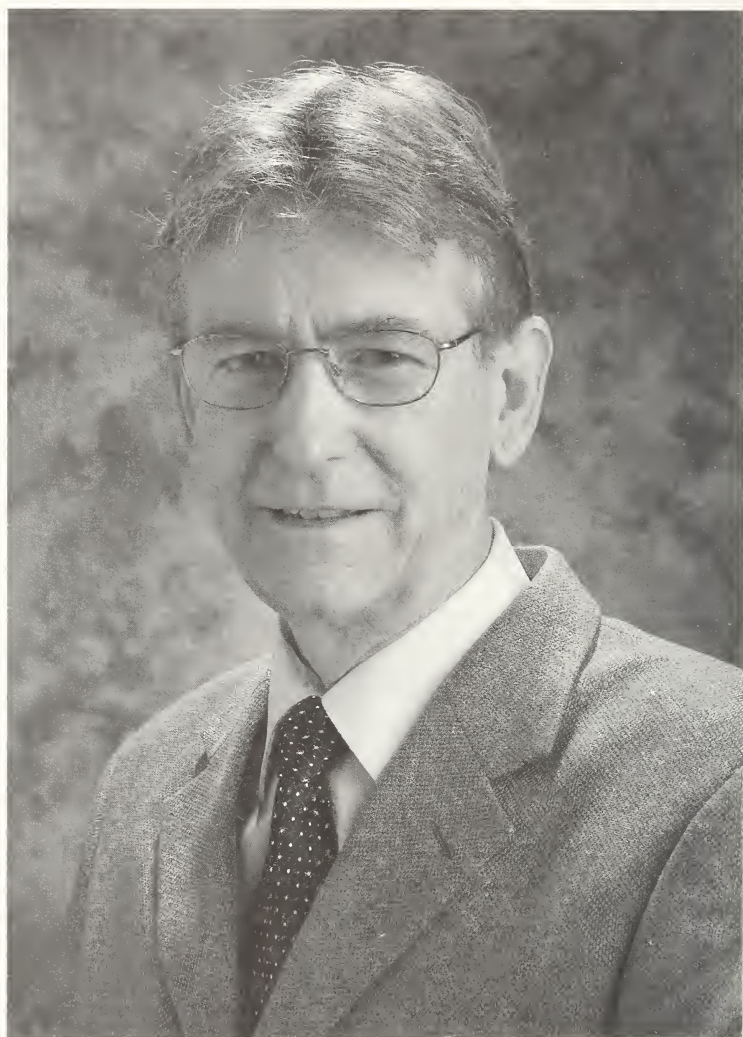
The selectee's character and record of achievement have brought major recognition and credibility to ARS and/or USDA, and are worthy of emulation by younger agricultural scientists.

The selectee's achievements must be or have been nationally and/or internationally recognized by peers in the scientific community.

Today we honor two outstanding scientists by inducting them into the Science Hall of Fame. A plaque citing the achievements of each will be on permanent display in the ARS National Visitor Center at the Beltsville Agricultural Research Center.



Edward B. Knipling
Administrator



SCIENCE HALL OF FAME

Robert E. Davis

Supervisory Research Plant Pathologist
Molecular Plant Pathology Laboratory
Beltsville, Maryland

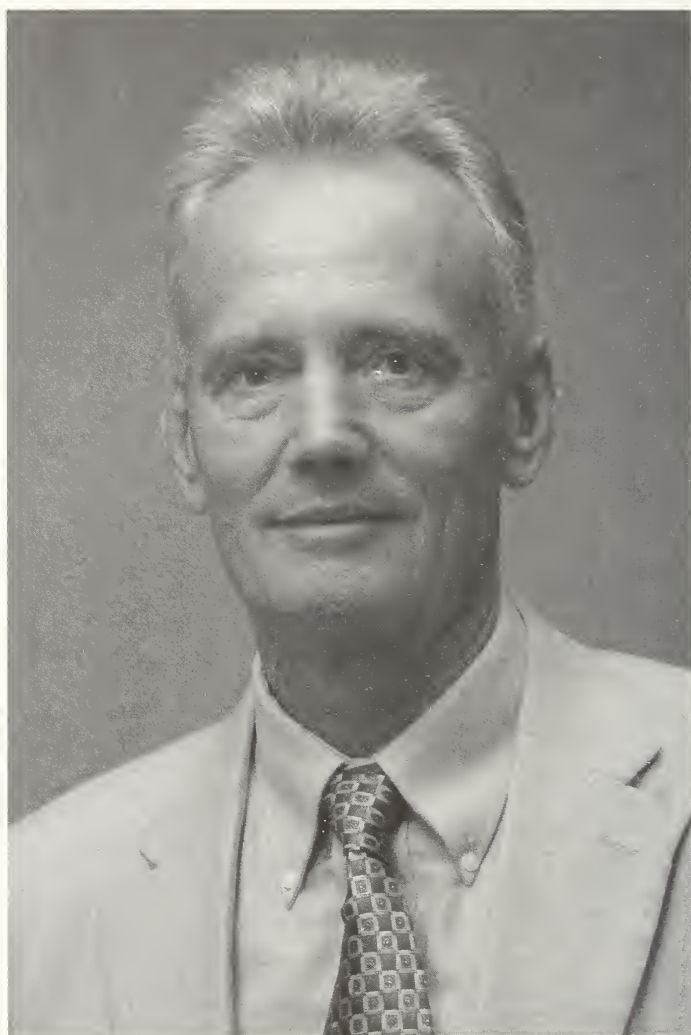
*For meritorious and exemplary contributions to the science
of plant pathology and for a dedicated career of service
to the Agricultural Research Service.*

Robert Davis's 1979 discovery of spiroplasmas, a previously unrecognized form of life, revolutionized the worlds of plant pathology, medicine, and animal husbandry. The fundamental understanding of this entire group of lifeforms rests on his work.

A form of bacteria without cell walls, spiroplasmas cause diseases of crop plants and of insects and are suspected in some human maladies. By showing the scientific world that this lifeform exists, Davis opened new categories of research. He showed the scientific community how to culture these smallest of microbes and how they survive outside plants on flower petals. He developed techniques to detect and identify spiroplasmas. He discovered spiroplasma diseases of honey bees and other pollinating insects. He conceptualized and led the project to sequence the spiroplasma genome. He even discovered a pathogen of the pathogen—a virus that infects spiroplasmas across species.

Davis is also an international expert on other bacteria that lack cell walls.

Davis is a Fellow of the Washington Academy of Sciences, the American Phytopathological Society, and the American Association for the Advancement of Science; and was elected to the National Academy of Sciences. He has been honored with the U.S. Presidential Rank Award of Distinguished Senior Professional, the Order of the Knight's Cross from the Republic of Lithuania, the Ruth Allen Award from the American Phytopathological Society, the Washington Academy of Sciences Award for Outstanding Research in Biological Sciences, Outstanding Scientist of the Year from ARS, and the USDA Silver Plow.



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SCIENCE HALL OF FAME

Andrew N. Sharpley

Lead Scientist (Retired)

Pasture Systems and Watershed Management Research Unit
University Park, Pennsylvania

*For pioneering nutrient research leading to the development
of agricultural management practices and strategies that are used
nationally and internationally to protect water quality.*

Andrew Sharpley has made valuable contributions in promoting soil and water conservation strategies that are both economically beneficial and environmentally sound. His research on non-point-source pollution led to involvement in developing Comprehensive Nutrient Management Plans that increased recreational use of waters, improved shellfish harvests, reduced fish kills, and lowered drinking water treatment costs.

Sharpley's research on nutrient cycling in soil-water systems demonstrated the movement of nutrients in agricultural systems and their impact on water resources. This led to equations that predict the transport of elemental nutrients in runoff, including the "P Index" for identifying agricultural fields at greatest risk for nutrient loss. The P (for phosphorus) Index serves as an educational tool that shows the results of management options to provide flexible strategies for keeping nutrients in the field and out of surface and ground water.

Sharpley is a Fellow of the Soil Science Society of America. Among his many honors are the American Society of Agronomy's Environmental Quality Research Award, the Soil Science Society of America's Applied Research Award and Soil Science Research Award, the American Society of Agricultural Engineers' Educational Aids Award, the Gamma Sigma Delta Research Award, as well as honors from the Association of Extension Administrators, Association of Agricultural Research Directors, and Soil and Water Conservation Society. From USDA came the Secretary's Honor Award; the NRCS Certificate of Appreciation; and the ARS Certificate of Merit, Administrator's Postdoctoral Research Fellow Award, Technology Transfer Award, and Sustained Superior Service Award.

ARS SCIENCE HALL OF FAME

1986

Edward F. Knipling

For pioneering research and leadership in development of the sterile insect technique, which led to the eradication of the screwworm, and of other technologies to suppress and manage insect pests.

1987

Howard L. Bachrach

For pioneering research on the molecular biology of foot-and-mouth disease that led to development of the world's first effective subunit vaccine for any disease of animals or humans through the use of gene splicing.

Myron K. Brakke

For consistent, career-long valuable contributions to the science of virology, particularly plant virology.

Glenn W. Burton

For outstanding achievements in forage and turf science, which have had extraordinary effects on the forage-based cattle industry, the turf industry, and agriculture worldwide.

Wilson A. Reeves

For outstanding research and leadership in the field of textile chemical finishing that have significantly benefited agriculture and consumers.

Earnest R. Sears

For pioneering work in wheat genetics and for discoveries on chromosomal mechanisms that established standards in animal, plant, and human genetics.

Orville A. Vogel

For development of the first useful semidwarf wheats and of innovative production systems that made the Pacific Northwest a major source of soft white wheat, inspired similar research efforts throughout the world, and sparked the Green Revolution.

Cecil H. Wadleigh

For elucidating the mechanisms through which crops respond to salinity and water stress and for inspired planning and leadership that enabled and motivated those who worked with him to expand and make use of knowledge of soils, water, and air and their interactions with plants.

1988

Francis E. Clark

For outstanding research leading to greater understanding of soil, plant, and microbial interactions and of nutrient cycling in terrestrial ecosystems.

Edgar E. Hartwig

For research in soybean breeding and genetics that has been a major factor in soybeans becoming the second most valuable U.S. crop and particularly for developing cultivars that thrive in the South.

Ralph E. Hodgson

For significant contributions to the knowledge of ruminant nutrition and for visionary leadership, both domestic and international, in the animal industries.

Hamish N. Munro

For career-long contributions to the science of nutrition, particularly on the relationship of dietary protein and iron to the health of the elderly, and for promotion of studies on aging.

Jose Vicent-Chandler

For research leading to new and greatly improved production systems for beef, milk, coffee, plantains, and rice for Puerto Rico and Caribbean countries.

1989

Douglas R. Dewey

For world leadership in genetics and taxonomy of the Triticeae tribe of grasses and for development of the cytogenetic basis for creating new grass hybrids.

Theodor O. Diener

For conceptualizing and discovering viroids, for leading research on viroid detection and control, and for inspiring new approaches in the search for causes of several serious diseases affecting plants, livestock, and humans.

Karl H. Norris

For developing principles and instruments using the electromagnetic wave spectrum to make rapid nondestructive measurements for evaluating quality of agricultural products.

John F. Sullivan

For engineering contributions to the food-processing and preservation industries, including development of instant potato flakes and of batch and continuous-explosion puffing.

1990

Theodore C. Byerly

For extraordinary contributions as a scientist, research leader, and administrator to the success of agricultural research programs and advances in U.S. and world agriculture.

Gordon Dickerson

For research contributions widely used by breeders to increase production efficiency of cattle, sheep, swine, and poultry.

Robert W. Holley

For isolation and characterization, including the first nucleotide sequence, of transfer ribonucleic acid (tRNA).

Virgil A. Johnson

For outstanding contributions to development of superior bread wheat cultivars and of improved wheat germplasm and for vigorous promotion of national and international cooperation among wheat breeders.

George F. Sprague

For outstanding contributions to effective methods of hybrid corn breeding and germplasm improvement.

1991

John H. Weinberger

For outstanding lifelong contributions in development of fruit varieties and fruit-breeding technology.

Walter H. Wischmeier

For developing the Universal Soil Loss Equation, which has been widely used for three decades worldwide in conservation and management of our natural resources.

1992

Raymond C. Bushland

For pioneering research leading to screwworm eradication by the sterile insect technique and for research leading to control of typhus vectors.

Lyman B. Crittenden

For significant contributions to retroviral genetics, transgenic animal development, and genome mapping in poultry.

Arnel R. Hallauer

For increasing understanding and use of quantitative genetics in plant breeding, which has led to development of many superior corn hybrids worldwide.

1993

John R. Gorham

For scientific leadership and studies that have resulted in solutions of disease control problems and have advanced the basic knowledge of viral and genetic diseases in humans and animals.

Sterling B. Hendricks

For significant contributions as a chemist, physicist, mathematician, plant physiologist, geologist, and mineralogist.

Clair E. Terrill

For scientific contributions and worldwide leadership in sheep production research.

1994

Charles N. Bollich

In recognition of superlative accomplishments in rice breeding and genetics and their consequent benefits to American agriculture.

Chester G. McWhorter

For outstanding contributions to American agriculture through basic and applied research that has resulted in improved weed-management technology, increased yields, and reduced cost of production.

Malcolm J. Thompson

For career research contributions in the field of insect and plant steroid biochemistry.

1995

Harry Alfred Borthwick

In recognition of contributions in elucidating the importance of photoperiodic mechanisms controlling flowering in plants.

William M. Doane

For initiating, leading, and conducting research that created new and useful products and led to the establishment of new industries based on agricultural raw materials.

Walter Mertz, M.D.

For contributions and leadership in elucidating the importance to health of several trace elements and promoting research on dietary risk factors for chronic disorders.

1996

Fred W. Blaisdell

*For pioneering research and development of improved structures
for soil and water conservation.*

Herbert J. Dutton

*For pioneering research leading to the establishment of soybean oil
as the predominant edible vegetable oil in the world.*

Charles Jackson Hearn

*For developing improved orange, grapefruit, and tangerine varieties used
extensively by U.S. citrus producers to replace trees killed by the
1980 freezes and to expand the citrus acreage.*

1997

Morton Beroza

*For major contributions to the development of environmentally compatible
insect control strategies through discovery of lures,
attractants, repellents, and pheromones.*

R. James Cook

*For extraordinary research on sustainable approaches to improve wheat health
and for leadership in the transfer of information and technology
resulting in solutions to agricultural problems.*

William L. Ogren

*For outstanding leadership and fundamental contributions to photosynthetic
carbon metabolism leading to the discovery of new opportunities to improve
the efficiency and productivity of crop plants.*

1998

Thomas J. Henneberry

*For conducting basic and applied individual and team research that has had
sustained global impact on development and implementation
of integrated pest management systems.*

James H. Tumlinson III

*For research that led to eradication of the boll weevil from the southeastern
United States and the discovery of the chemical basis of
plant-insect-parasite interaction.*

1999

Allene R. Jeanes

*For microbiological, chemical, and engineering research that created urgently
needed, life-saving industrial polymers made from agricultural commodities.*

Charles W. Stuber

For pioneering the use of molecular markers in identifying, mapping, and manipulating quantitative trait genes.

Richard L. Witter

For outstanding research contributions and leadership in the field of avian tumor viruses.

2000

Virginia H. Holsinger

For research leading to increased use of milk products and for humanitarian efforts in developing nutritious formulations for international food donation programs.

Marvin E. Jensen

For advancements in irrigation scheduling using computer models to estimate soil-water balance and for advancements in evapotranspiration theory.

Harley W. Moon

For contributions to a fundamental understanding of intestinal diseases in livestock and for development of effective control programs for these diseases.

2001

Lawrence A. Johnson

For pioneering research in developing the first useful technology for gender preselection of animal and human offspring and for outstanding contributions to semen preservation and artificial insemination in swine.

William E. Larson

In recognition of a pioneer who respected soil as a natural resource and devoted a research career toward improving its quality.

William L. Mengeling

For outstanding research contributions and leadership in the field of viral diseases of swine.

2002

George Inglett

In recognition of the development of novel, patented food ingredients including Oatrim and Nutrim, which have had a sustained beneficial effect on the American diet.

K. Darwin Murrell

For landmark research on parasites of veterinary and medical importance, especially trichinellosis of swine, and innovative development and leadership of laboratory and agency-level programs that established and advanced objectives of the Agricultural Research Service.

Stuart O. Nelson

For pioneering research on the dielectric properties of agricultural materials, applications of radio-frequency and microwave energy, and electrical measurements for moisture sensing in cereal grains.

2003

Edward B. Bagley

For outstanding research in rheology and food science that generated fundamental understanding of flow mechanics; and for pioneering concepts in super-absorbent materials that resulted in one of the most successful technology transfers in USDA history.

Janice M. Miller

For pioneering research in understanding, diagnosing, and controlling bovine leukemia, transmissible spongiform encephalopathies, and other chronic infectious or zoonotic diseases of ruminants.

2004

Donald K. Barnes

For remarkable contributions to alfalfa breeding and genetics, mentoring of plant breeding students, and service to ARS and the scientific community.

Ruth Rogan Benerito

For applying physical chemistry to solve problems that led to improved procedures and new uses for renewable resources such as cotton, wood, and paper.

Keith E. Gregory

For outstanding research contributions in genetics and breeding of beef cattle and for leadership of ARS research programs.

2005

Charles W. Beard

For outstanding contributions in poultry health research, in professional and organizational leadership, and in developing biocontainment concepts and systems for animal agriculture.

Nelson A. Cox

For lifetime contributions of distinctive research benefitting the poultry industry and public health through development and transfer of technologies that reduced foodborne pathogens, particularly Salmonella and Campylobacter.

Sigmund Schwimmer

For a distinguished career of scientific excellence in enzymology and its application to food science and human food products and quality.

Tien C. Tso

For outstanding research contributions and leadership in plant physiology and phytochemistry and their use to advance plant science.

2006

Wayne W. Hanna

For significant scientific contributions to U.S. food production and the national recreation industries and for related scientific achievements for research on apomixis and interspecific germplasm transfer.

Ray D. Jackson

For elucidating the basis of soil-plant-water-atmosphere relationships and developing innovative methods to assess and manage crop status through remote sensing.

Vernon G. Pursel

For lifetime contributions to genetic and reproductive development of livestock through pioneering research in genetic engineering and semen preservation.

2007

Johnie N. Jenkins

For pioneering leadership, vision, innovative cotton host plant resistance research and technologies, impact on science, and development and mentoring of young scientists.

Dennis Gonsalves

For pioneering research and leadership in plant pathology and biotechnology to increase agricultural productivity and improve human health.

Janet C. King

For national and international leadership and research achievement in human nutrition.

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